

Application No. 10/695,949
AMENDMENT dated November 17, 2008
Reply to Office Action of May 16, 2008

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-20 (Canceled without prejudice to their re-introduction)

Claim 21 (Currently Amended): An injection head for ejecting a flowable substance, comprising:

- a housing including a chamber defined within at least a portion of the housing, the chamber having a supply port, a purge port, and an outlet spaced along the housing in a longitudinal direction;

- an actuator connected to the housing; and

- an injection spindle connected to the actuator and slidably retained within the chamber between an ejection position and a deployed position; and wherein the injection spindle has a diameter smaller than that of the chamber and is provided with respective larger diameter portions adjacent its two ends, with the larger diameter portions forming respective seals with walls of the chamber to enclose a space between the two larger diameter portions; wherein a plug ~~for blocking the outlet~~ is disposed within the chamber at an end of the spindle opposite that connected to the actuator; [[and]] wherein in said ejection position, the two larger diameter portions of the spindle are positioned to connect the supply port with the outlet and seal off the purge port from both the supply port and the outlet, and wherein in said deployed position, the two larger diameter portions are positioned to connect the purge and supply ports and to cause the end of the spindle opposite the actuator and the plug to seal off and to block the outlet and an injection port such that when the injection spindle retracts from the deployed position, the plug remains in communication with the injection port to block the

injection port, and wherein the injection head is removable from the injection port after the injection spindle is disposed in the deployed position such that the plug remains blocking the injection port and the end of the spindle opposite the actuator remains sealing off the outlet after the injection head is removed from the injection port.

Claim 22 (Original): The injection head of claim 21, further comprising a fastener disposed at the outlet of the chamber.

Claim 23 (Original): The injection head of claim 22, wherein the fastener includes a threaded collar.

Claim 24 (Previously Presented): The injection head of claim 22, wherein the fastener includes a locking groove and flange.

Claim 25 (Previously Presented): The injection head of claim 21, further comprising a tube retained within the chamber in the housing and between the wall of the chamber and the spindle and, wherein the tube is formed of low friction material and is provided with respective openings positioned to correspond with the supply and purge ports of the housing.

Claim 26 (Previously Presented): The injection head of claim 21, wherein the actuator includes a solenoid that is disposed at one end of the housing opposed to the outlet, the supply port is disposed adjacent the outlet, and the purge port is disposed between the supply port and the solenoid.

Claim 27 (Original): The injection head of claim 21, wherein the supply port is disposed between the purge port and the outlet.

Application No. 10/695,949
AMENDMENT dated November 17, 2008
Reply to Office Action of May 16, 2008

Claim 28 (Canceled)

Claim 29 (Previously Presented): The injection head of claim 21, wherein said plug is removable and releasably retained within the chamber.

Claim 30 (Original): The injection head of claim 29, wherein the removable plug is disposed at an end of the injection spindle when the injection spindle is in the ejection position.

Claim 31 (Original): The injection head of claim 30, wherein the injection spindle has an end shaped to complement the removable plug.

Claim 32 (Original): The injection head of claim 30, wherein the plug is slidably retained within the chamber and is positioned at the outlet when the injection spindle is in the deployed position.

Claim 33 (Original): The injection head of claim 29, wherein the removable plug is a sphere.

Claim 34 (Original): The injection head of claim 29, wherein the removable plug is a disk shaped object.

Claim 35 (Original): The injection head of claim 21, further comprising a seal disposed at the outlet of the chamber.

Claim 36 (Currently Amended): The injection head of claim 21, wherein the tube includes ~~[[a]]~~ an edge at the outlet with an engaging formation and a seal retained within the engaging formation.

Claim 37 (Original): The injection head of claim 21, wherein the injection spindle has a low friction surface.

Claim 38 (Previously Presented): A molding system comprising:

a base mold;

a soft tool formed as a sheet having an outer edge, a seal formed at the outer edge and connected in sealing engagement with a base mold to form a closed mold, a vacuum channel formed at the outer edge of the sheet and spaced inwardly of the seal, and at least one injection port disposed in the sheet; and

an injection head releasably connected to the injection port for injecting a flowable substance into the closed mold, including a housing with a chamber defined therein having a supply port, a purge port, and an outlet, an actuator connected to the housing, an injection spindle connected to the actuator and slidably retained within the chamber between an ejection position and a deployed position, and a plug disposed within the chamber at an end of the injection spindle opposite that connected to the actuator wherein when the injection spindle is in said deployed position, the plug blocks the injection port such that when the injection head is removed from the injection port, the plug remains in communication with the injection port to block the injection port.

Application No. 10/695,949
AMENDMENT dated November 17, 2008
Reply to Office Action of May 16, 2008

Claim 39 (Currently Amended): The injection head of claim 26, wherein the both larger diameter portions of the spindle are disposed between the supply port and the solenoid when the spindle is disposed in the ejection position; and wherein one of the larger diameter portions of the spindle is disposed between the supply port and the outlet and the other larger diameter portion is disposed between the purge port and the solenoid when the spindle is disposed in the ~~enabled~~ deployed position, whereby communication between the supply and purge ports takes place via the enclosed space between the two larger diameter portions of the spindle.

Claim 40 (Canceled)